

FIG.1

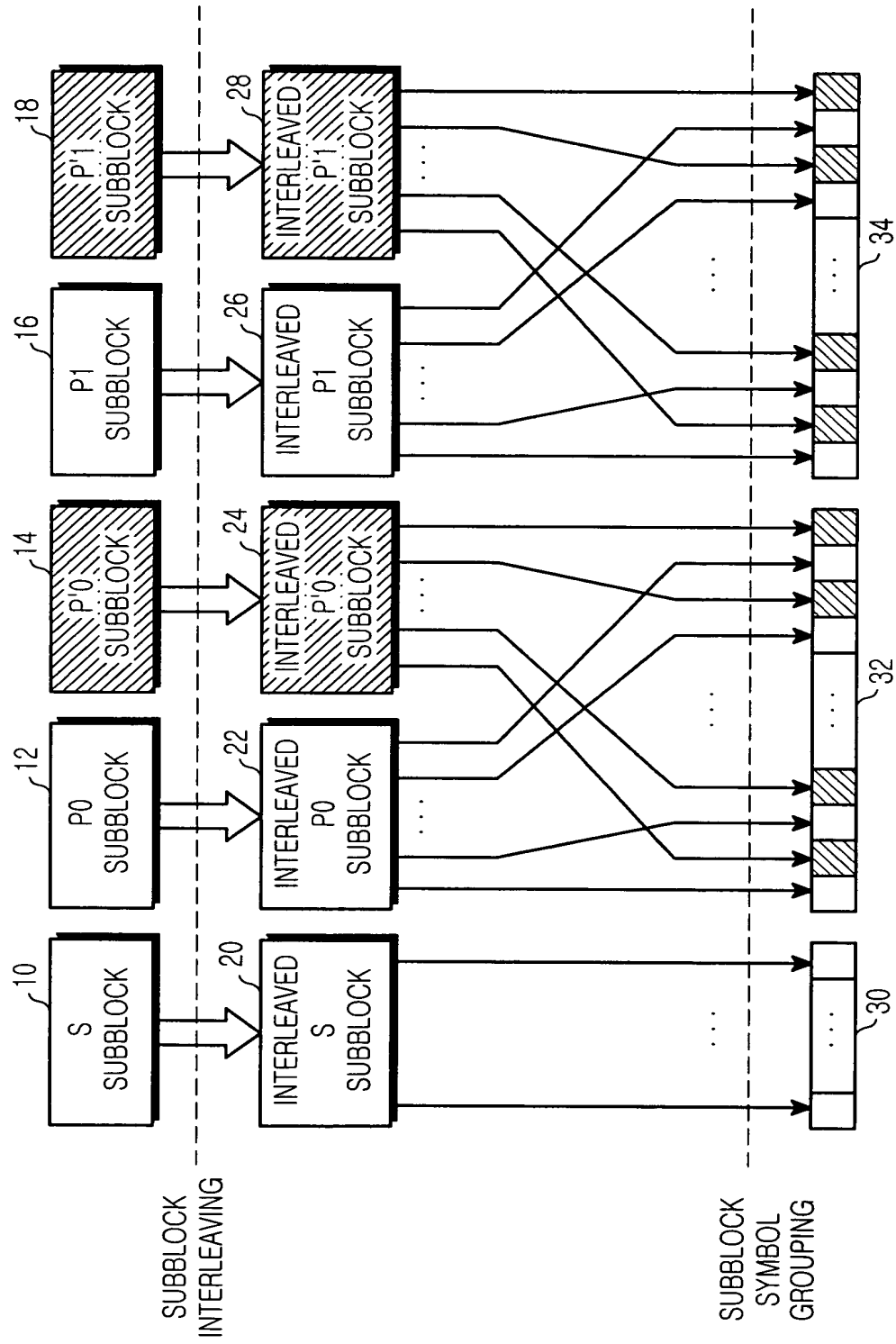


FIG.2

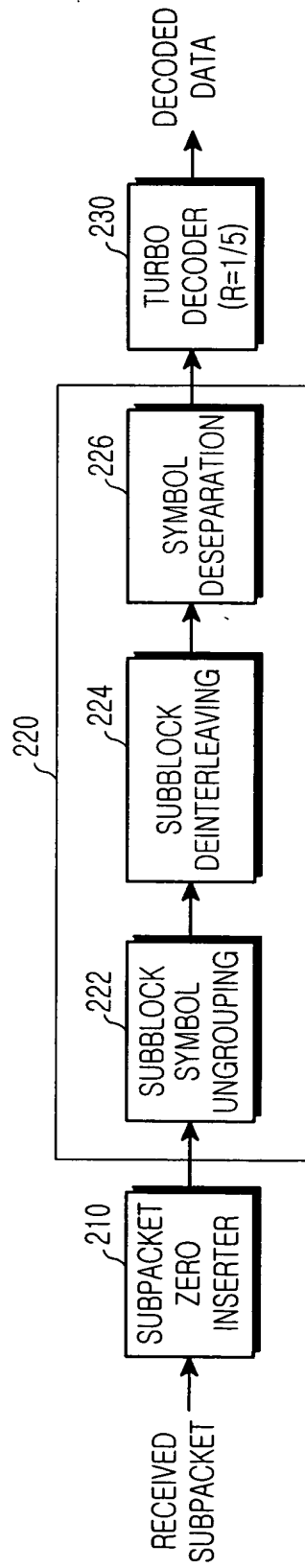


FIG.3

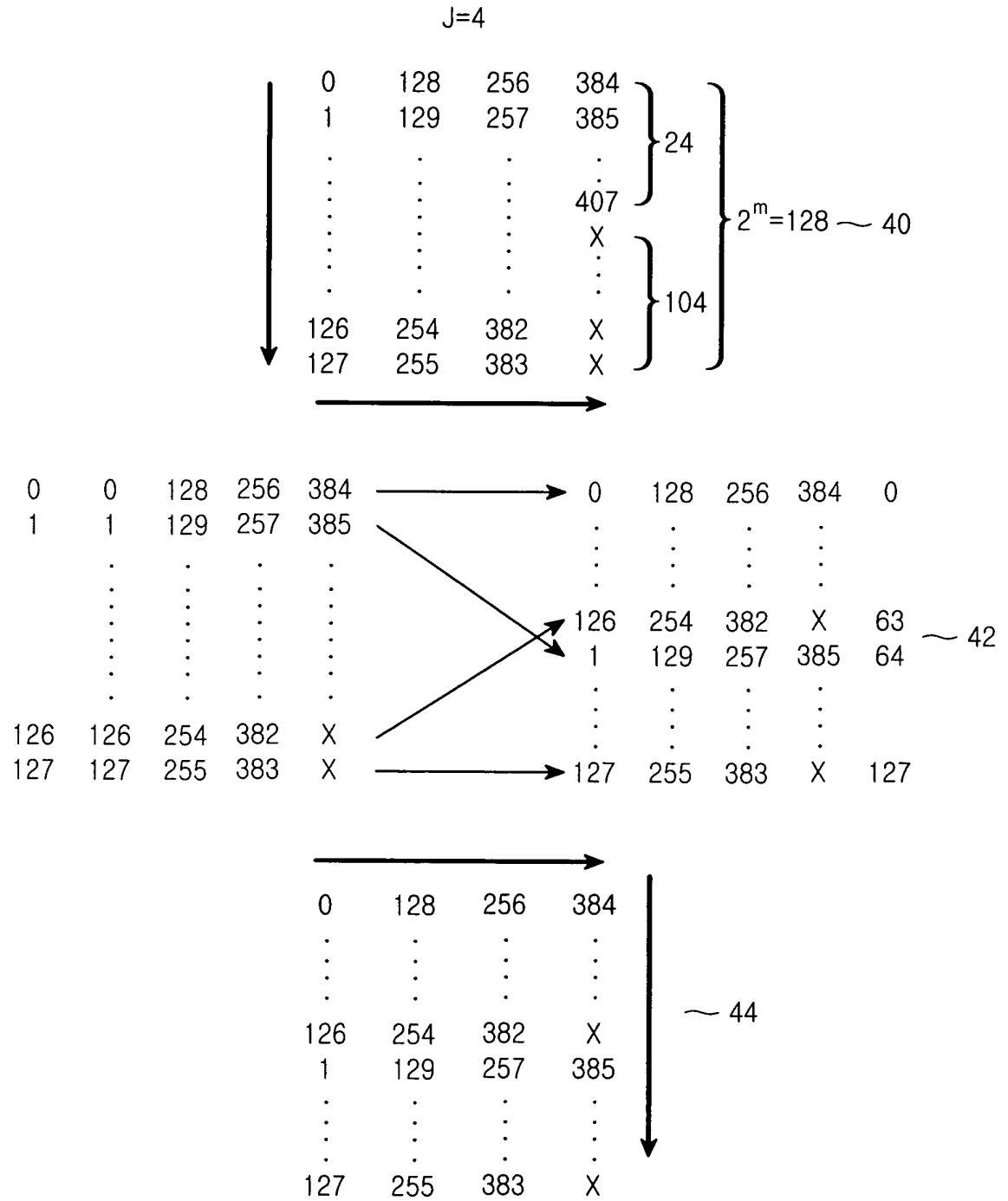


FIG.4

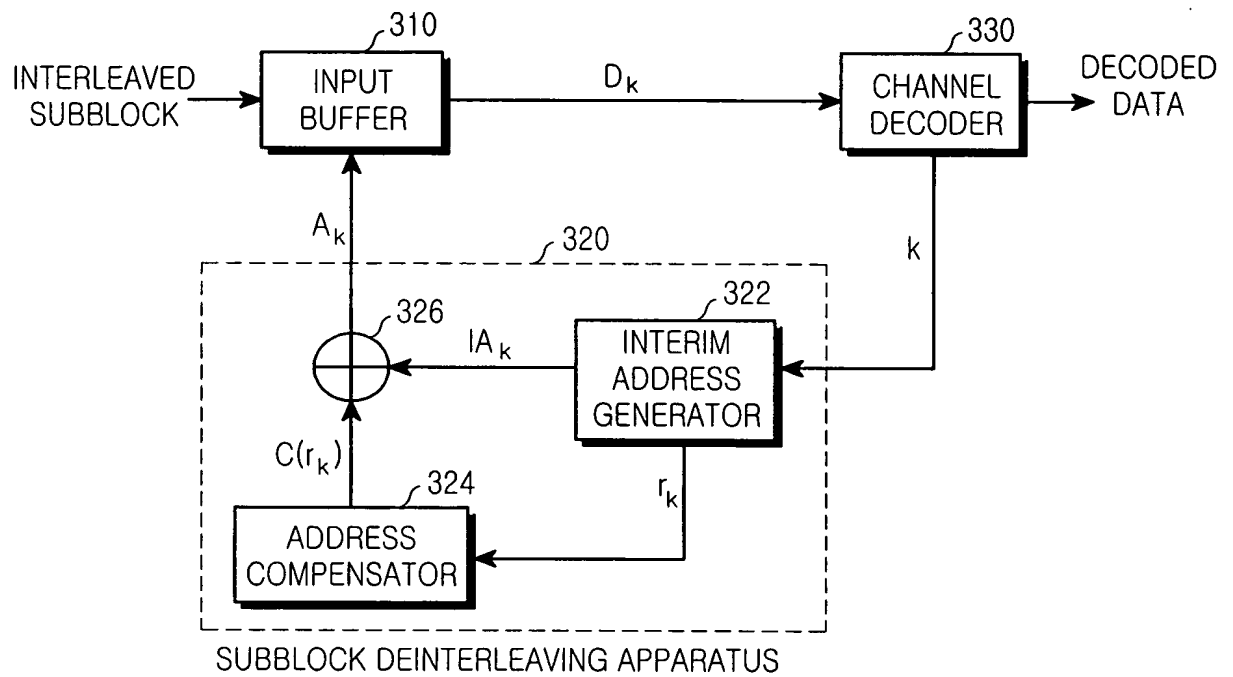


FIG.5

EXAMPLE) $m=4$, $J=2$, and $R=4$









ROW INDEX	BEFORE ROW BRO	AFTER ROW BRO
0	0 	0 
1	1 	8
2	2 	4
3	3 	12
4	4	2 
5	5	10
6	6	6
7	7	14
8	8	1 
9	9	9
10	10	5
11	11	13
12	12	3 
13	13	11
14	14	7
15	15	15

FIG.6





C.S. INDEX : k	0	8	4	12	2	10	6	14	1	9	5	13	3	11	7	15
																
	16				18				17				19			
ROW INDEX : r _k	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INTERIM ADDR. : IA _k	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
	[1]				[5]				[9]				[13]			
COMP. FACTOR : C(r _k)	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4
READ ADDR. : A _k	[0]	[2]	[3]	[4]	[5]	[7]	[8]	[9]	[10]	[12]	[13]	[14]	[15]	[17]	[18]	[19]
	[1]				[6]				[11]				[16]			

FIG.7

EXAMPLE) m=4, J=2, and R=12

ROW INDEX	BEFORE ROW BRO		AFTER ROW BRO	
0	0	16	0	16
1	1	17	8	24
2	2	18	4	20
3	3	19	12	28
4	4	20	2	18
5	5	21	10	26
6	6	22	6	22
7	7	23	14	30
8	8	24	1	17
9	9	25	9	25
10	10	26	5	21
11	11	27	13	29
12	12	28	3	19
13	13	29	11	27
14	14	30	7	23
15	15	31	15	31

FIG.8

C.S. INDEX	0	8	4	12	2	10	6	14	1	9	5	13	3	11	7	15
: k	16	24	20	28	18	26	22	30	17	25	21	29	19	27	23	31
ROW INDEX	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
: r _k																
INTERIM ADDR.	[0]	[2]	[4]	[6]	[8]	[10]	[12]	[14]	[16]	[18]	[20]	[22]	[24]	[26]	[28]	[30]
: I _{A_k}	[1]	[3]	[5]		[9]	[11]	[13]		[17]	[19]	[21]		[25]	[27]	[29]	
COMP. FACTOR	0	0	0	0	-1	-1	-1	-1	-2	-2	-2	-2	-3	-3	-3	-3
: C(r _k)																
READ ADDR.	[0]	[2]	[4]	[6]	[7]	[9]	[11]	[13]	[14]	[16]	[18]	[20]	[21]	[23]	[25]	[27]
: A _k	[1]	[3]	[5]		[8]	[10]	[12]		[15]	[17]	[19]		[22]	[24]	[26]	

FIG.9

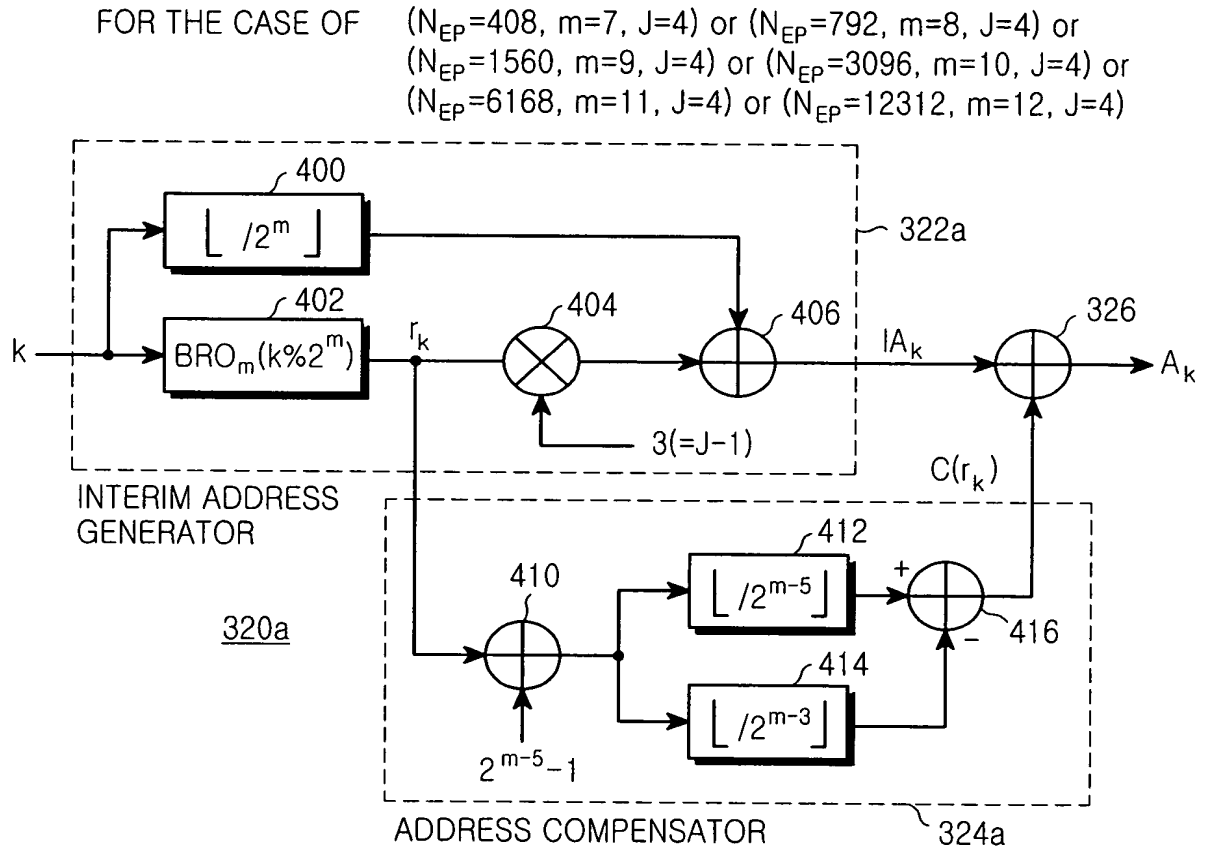


FIG.10

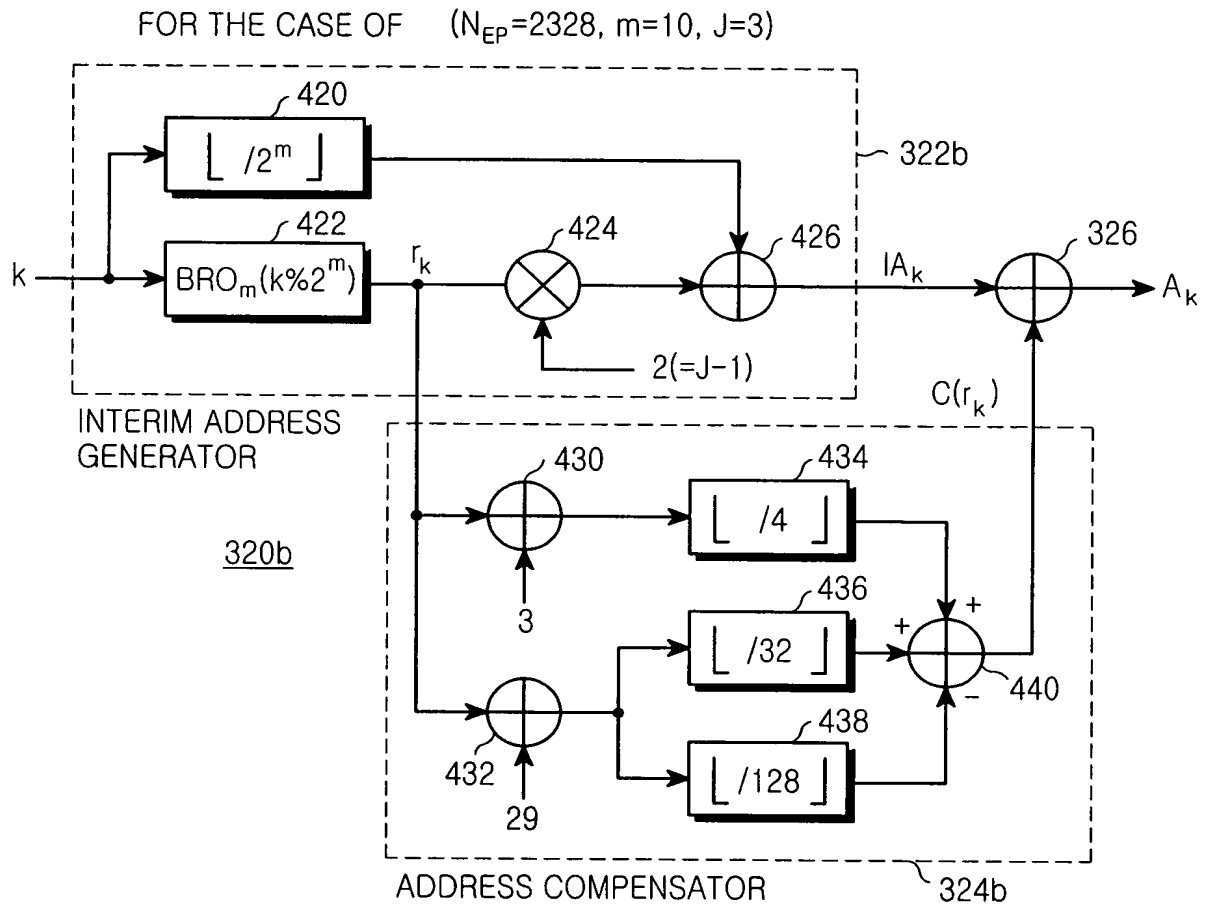


FIG.11

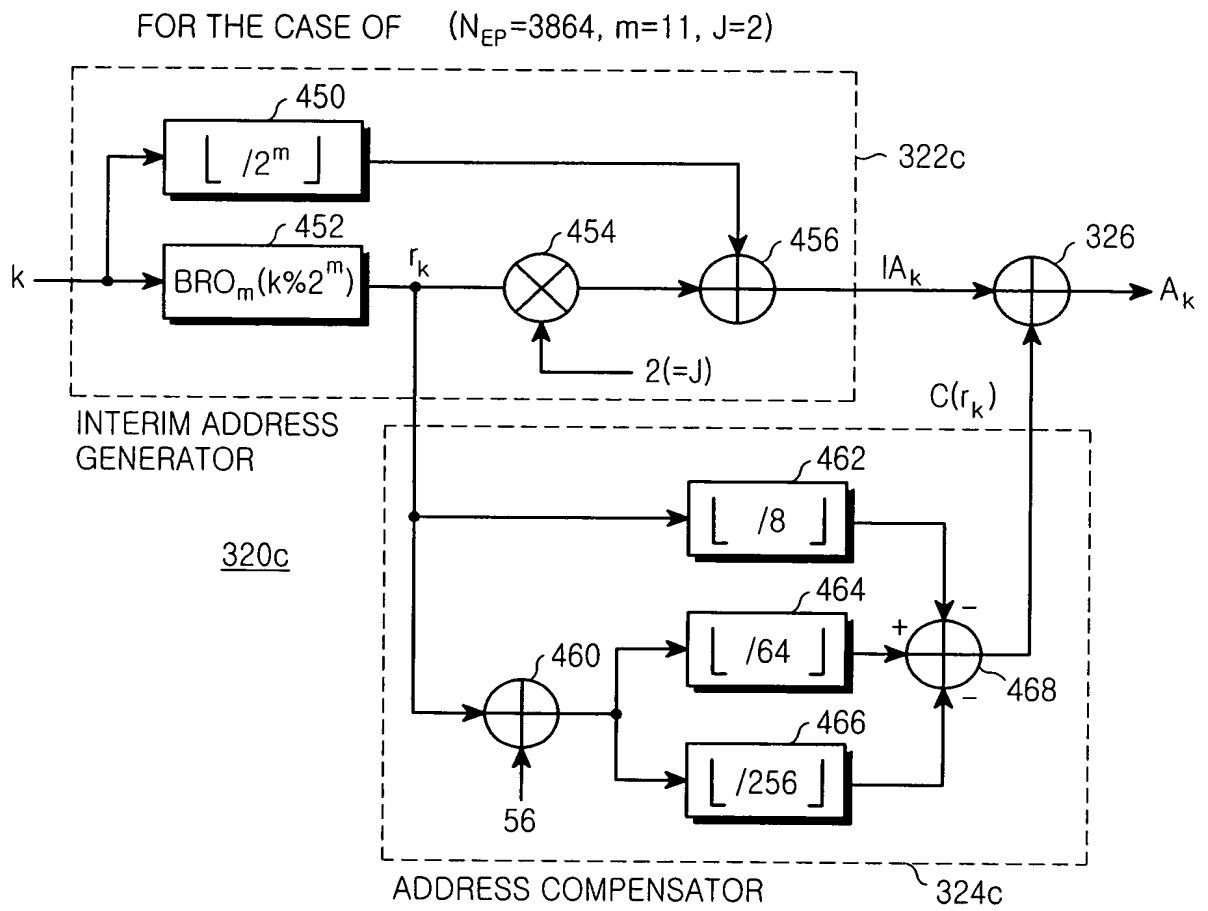


FIG.12

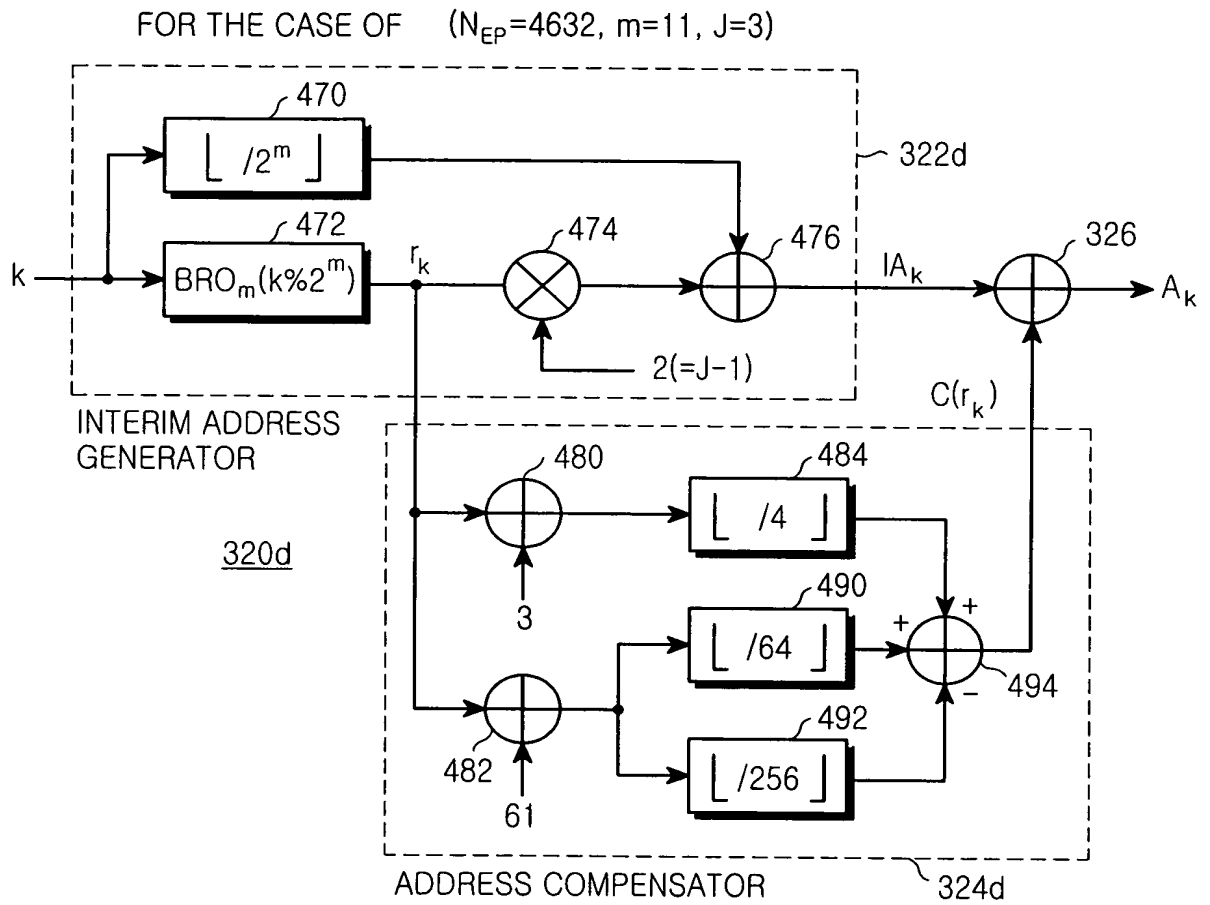


FIG.13

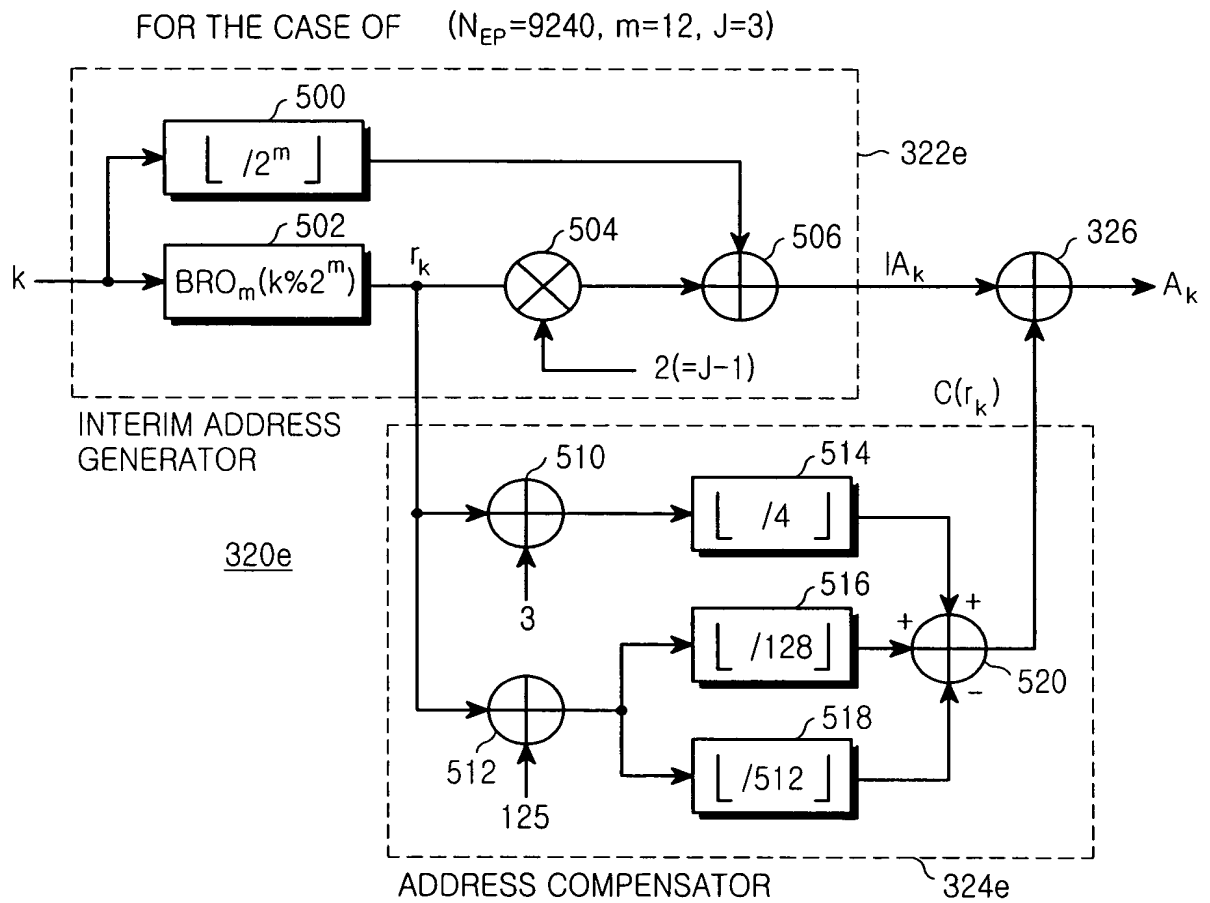


FIG.14

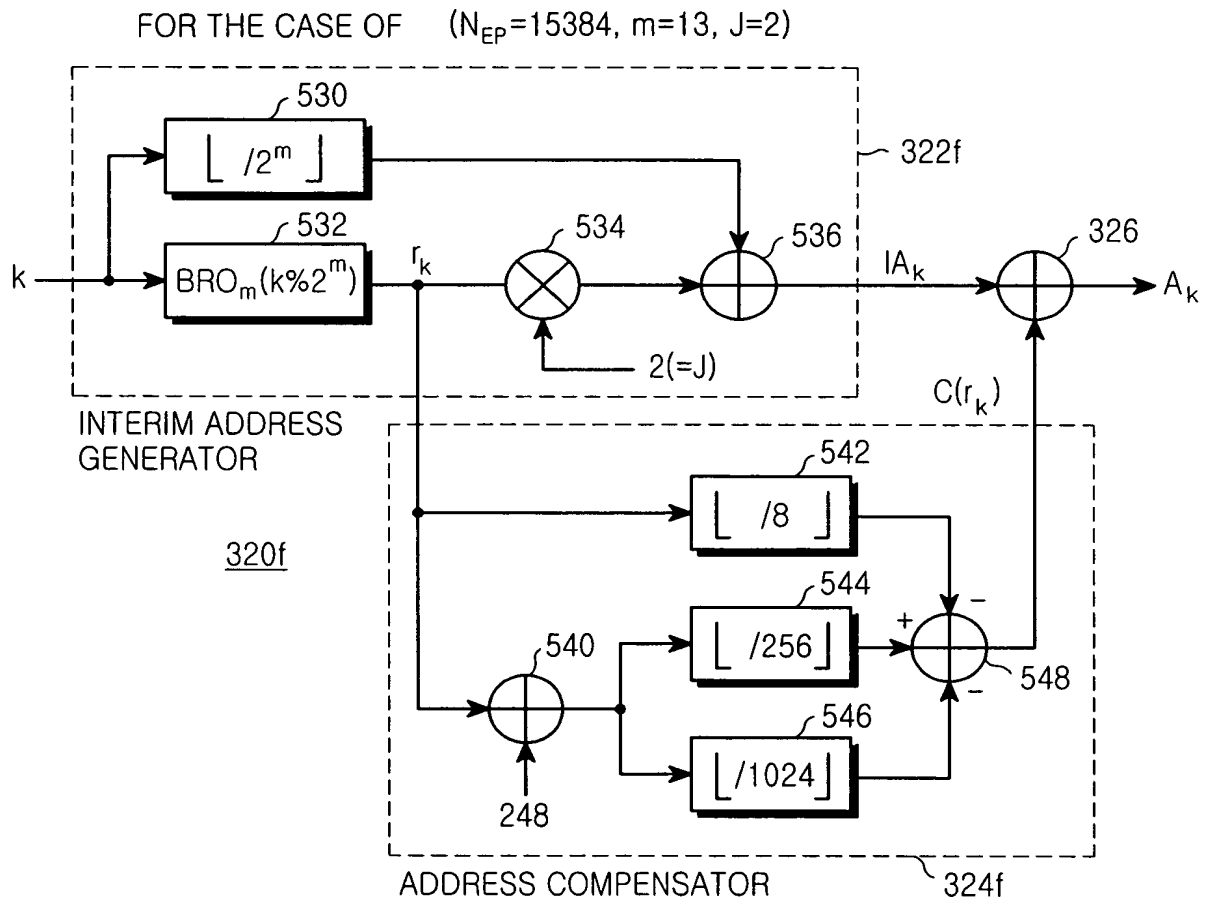


FIG.15